



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/048,214	01/30/2002	Leszek Lisowski	Q68305	4778

23373 7590 02/20/2003

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC 20037

EXAMINER

MULLINS, BURTON S

ART UNIT PAPER NUMBER

2834

DATE MAILED: 02/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/048,214

Applicant(s)

LISOWSKI, LESZEK

Examiner

Burton S. Mullins

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-17, 19 and 21 is/are rejected.
- 7) ☒ Claim(s) 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 30 January 2002 has been considered by the examiner.

Specification

3. The disclosure is objected to because of the following informalities: In the abstract, delete "Fig.1".

Appropriate correction is required.

Claim Objections

4. Claims 11 and 21 are objected to because of the following informalities: The syntax of recitation "a second rotor connected to said output shaft and a stationary stator assembly" is improper since it can mean the second rotor is connected to the stationary assembly.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (EP 798844) in view of Janson (US 4,239,092). Yang teaches a continuously variable electromagnetic transmission, including a commutatorless, axial flux dynamoelectric machine provided with an input shaft and an output shaft (c.7, lines 1-32), and control means for controlling and supplying electric power at a variable frequency to said machine (c.8, lines 12-15), said dynamoelectric machine including a first rotor 103 (driven by power source PO, Fig.1) connected to said input shaft, a second rotor 102 connected to said output shaft and a stationary stator assembly 101, said two rotors and said stator assembly comprising discoid elements, e.g., as in embodiment of Fig.30-1, said discoid elements of said stator assembly and of at least one of said rotors comprising active elements having windings connected to said control means and arranged to interact with the other rotor by means of magnetic flux through air gaps including axial air gaps between respective discoid elements of said rotors and said stator assembly (c.7, lines 1-32).

Yang does not teach that his transmission includes “displacement means for axially displacing at least one of said discoid elements to modify the width of the axial air gap between this discoid element and an adjacent discoid element.”

Janson teaches a magnetic slip clutch including a magnetic assembly including permanent magnet 7 which rotates relative to a cylindrical outer housing 3 with radial grooves 13 (Figs.1&2). Janson further teaches an adjustment mechanism 21 that moves the magnetic assembly axially to increase or decrease the connection between the magnetic assembly and the outer housing 3 (c.5, lines 4-45). This effectively modifies the width of the annular air gap space 14 between the flux-transmitting elements in the magnetic assembly and outer housing (c.2, lines 15-20; Fig.2 shows position of minimum flux transfer, i.e., large air gap; Fig.5 shows position of maximum flux transfer, i.e. small air gap). Janson's means for varying the size of the space provides a way to adjust the coupling and torque.

It would have been obvious to one having ordinary skill in the art to modify Yang's axial-gap electro-magnetic transmission and provide a means to modify the width of the air gap as in Janson since this would have been desirable to adjust the flux coupling between the input and output rotors and hence the torque transmitted by the output rotor.

Regarding claims 12-14, Yang teaches reactive elements for the rotors or stator including permanent magnets (c.7, lines 1-32).

Regarding claims 15-16, various numbers of rotors are taught by Yan, e.g. c.69, lines 23-32.

Regarding claim 17, the threads 22/23 in Janson constitute an axial screw mechanism.

Regarding claim 19, various gear mechanisms such as ring, sun and planetary wheels 113/114/115 are disclosed by Yang for connecting the first and second rotors mechanically (c.36, lines 39-59, Fig.2).

Art Unit: 2834

7. Claims 11-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroedl (WO 99/39426). Schroedl teaches a continuously variable electromagnetic transmission, including a commutatorless, axial flux dynamoelectric machine provided with an input shaft and an output shaft (Fig.3), and control means for controlling and supplying electric power at a variable frequency to said machine (p.3, lines 15-21, p.4, lines 1-6), said dynamoelectric machine including a first rotor 4 connected to said input shaft, a second rotor 5 connected to said output shaft and a stationary stator assembly 1, said two rotors and said stator assembly comprising discoid elements (Fig.3), said discoid elements of said stator assembly and of at least one of said rotors comprising active elements having windings connected to said control means and arranged to interact with the other rotor by means of magnetic flux through air gaps including axial air gaps between respective discoid elements of said rotors and said stator assembly (c.6, lines 23-29).

Schroedl does not teach that his transmission includes “displacement means for axially displacing at least one of said discoid elements to modify the width of the axial air gap between this discoid element and an adjacent discoid element.”

Janson teaches a magnetic slip clutch including a magnetic assembly including permanent magnet 7 which rotates relative to a cylindrical outer housing 3 with radial grooves 13 (Figs.1&2). Janson further teaches an adjustment mechanism 21 that moves the magnetic assembly axially to increase or decrease the connection between the magnetic assembly and the outer housing 3 (c.5, lines 4-45). This effectively modifies the width of the annular air gap space 14 between the flux-transmitting elements in the magnetic assembly and outer housing (c.2, lines 15-20; Fig.2 shows position of minimum flux transfer, i.e., large air gap; Fig.5

Art Unit: 2834

shows position of maximum flux transfer, i.e. small air gap). Janson's means for varying the size of the space provides a way to adjust the coupling and torque.

It would have been obvious to one having ordinary skill in the art to modify Schroedl's axial-gap electro-magnetic transmission and provide a means to modify the width of the air gap as in Janson since this would have been desirable to adjust the flux coupling between the input and output rotors and hence the torque transmitted by the output rotor.

Allowable Subject Matter

8. Claims 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 18, the prior art, in particular Janson, does not teach that the displacement means includes a cam mechanism driven by an electric motor. Regarding claim 20, Janson, Yang and Schroedl, alone or in combination, do not teach that the rotor discs, when coupled, contact one another.

Conclusion

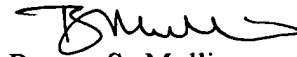
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be

Art Unit: 2834

reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm
February 15, 2003